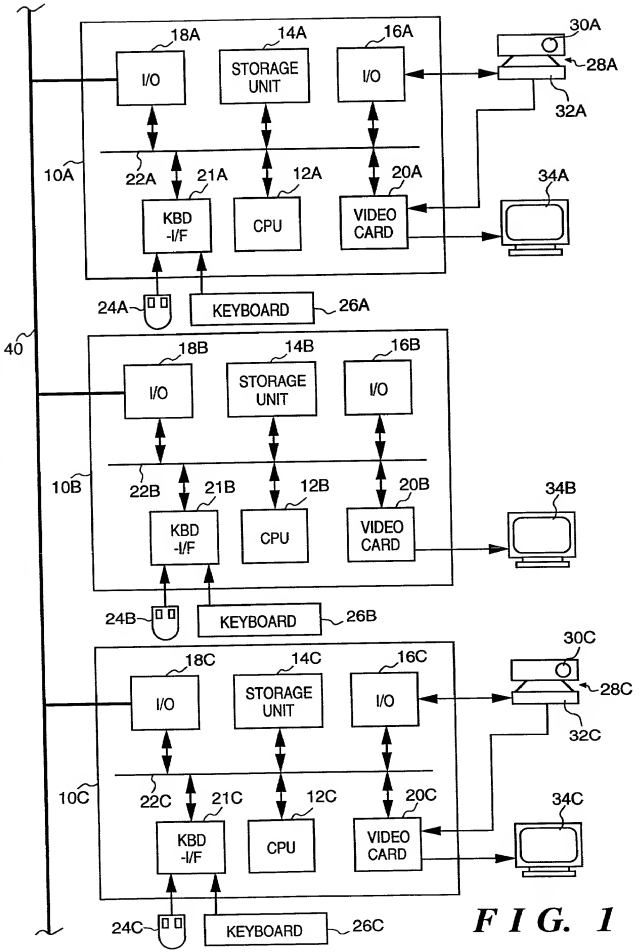

18A
14A
16A
30A
I/O
STORAGE UNIT
I/O
28A
32A
10A
22A
21A
12A
20A
34A
KBD -I/F
CPU
VIDEO CARD
24A
KEYBOARD
26A
40
18B
14B
16B
I/O
STORAGE UNIT
I/O
10B
22B
21B
12B
20B
34B
KBD -I/F
CPU
VIDEO CARD
24B
KEYBOARD
26B
30C
18C
14C
16C
I/O
STORAGE UNIT
I/O
28C
32C
10C
22C
21C
12C
20C
34C
KBD -I/F
CPU
VIDEO CARD
24C
KEYBOARD
26C

FIG. 1

FIG. 2

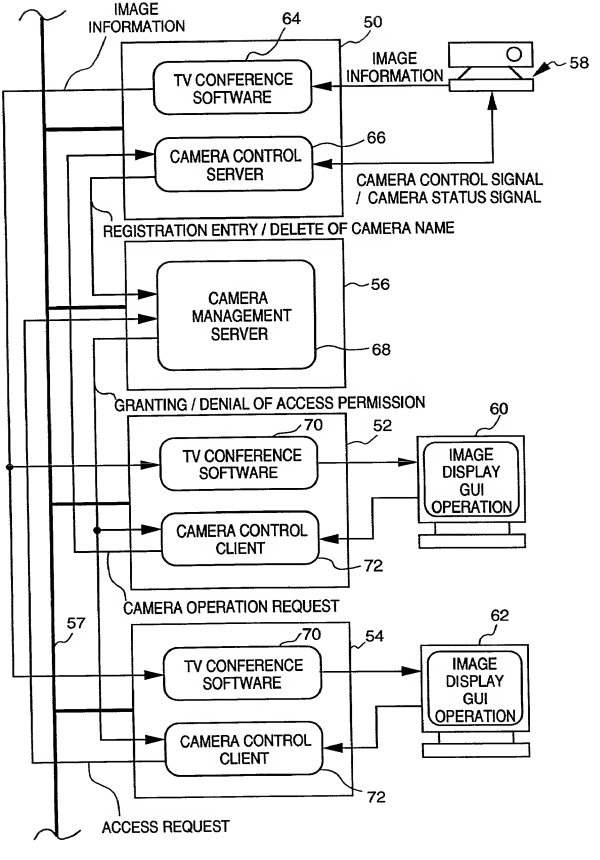


IMAGE INFORMATION
64
50
TV CONFERENCE SOFTWARE
IMAGE INFORMATION
58
CAMERA CONTROL SERVER
66
CAMERA CONTROL SIGNAL / CAMERA STATUS SIGNAL
REGISTRATION ENTRY / DELETE OF CAMERA NAME
CAMERA MANAGEMENT SERVER
56
68
GRANTING / DENIAL OF ACCESS PERMISSION
70
52
60
TV CONFERENCE SOFTWARE
IMAGE DISPLAY GUI OPERATION
CAMERA CONTROL CLIENT
72
CAMERA OPERATION REQUEST
57
62
70
54
TV CONFERENCE SOFTWARE
IMAGE DISPLAY GUI OPERATION
CAMERA CONTROL CLIENT
72
ACCESS REQUEST

F I G. 3

```
typedef struct  camera_in {
        double tilt_angle ;
        double pan_angle ;
        int zoom ;
} camera_in;

typedef struct func_out {
        int  ret ;
} func_out ;

CLIENT * camera_open (char * host) ;
void camera_close (CLIENT * cl) ;

func_out * camera_pan_pos_1 (camera_in *, CLIENT * cl) ;
func_out * camera_tilt _ pos_1 (camera_in *, CLIENT * cl) ;
func_out * camera_zoom_pos_1 (camera_in *, CLIENT * cl) ;
```

F I G. 4

CAMERA NAME	USER NAME	POSITION	DIRECTION
host1	----------	(10, 15, 20)	(20, 35)
host2	host3	(45, 32, 20)	(0, 12)
host3	----------		
host4	host1		
⋮	⋮		

80

F I G. 5

```
typedef struct  camera_name {
        char name [MAXNAME] ;
} camera_name ;

void append_camera_list_1 (camera_name *, CLIENT * cl) ;
void delete_camera_list_1 (camera_name *, CLIENT * cl) ;
```

FIG. 6

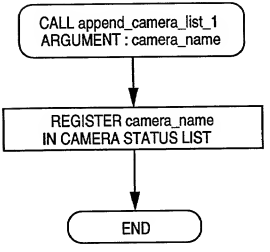

CALL append_camera_list_1
ARGUMENT : camera_name
REGISTER camera_name
IN CAMERA STATUS LIST
END

FIG. 7

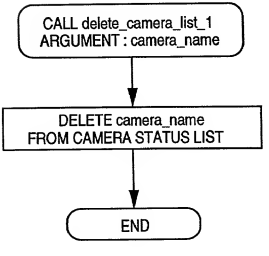

CALL delete_camera_list_1
ARGUMENT : camera_name
DELETE camera_name
FROM CAMERA STATUS LIST
END

FIG. 8

```
typedef struct  access_in {
        char target_name [MAXNAME] ;
        char user_name [MAXNAME] ;
} access_in ;

func_out * access_begin_1 (access_in *, CLIENT * cl) ;
func_out * access_end_1 (access_in *, CLIENT * cl) ;
```

FIG. 9

82

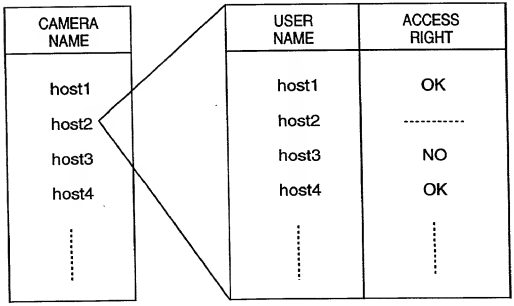
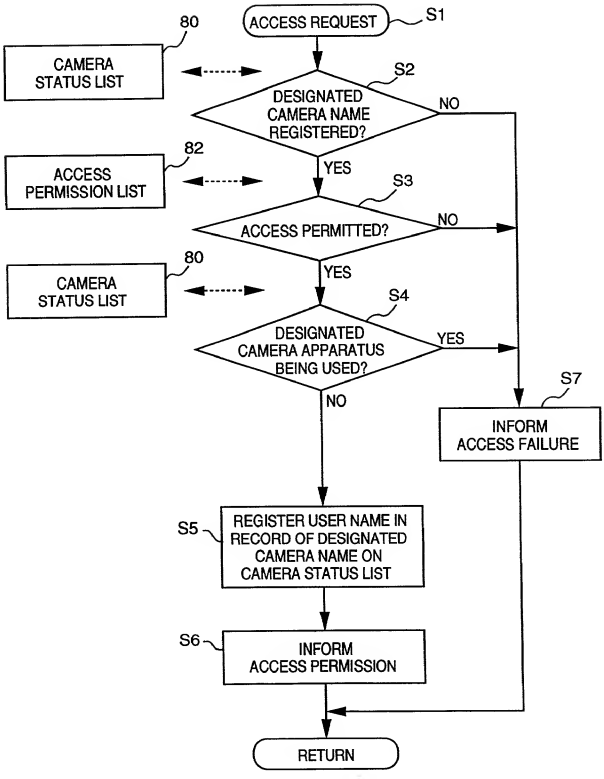


FIG. 10

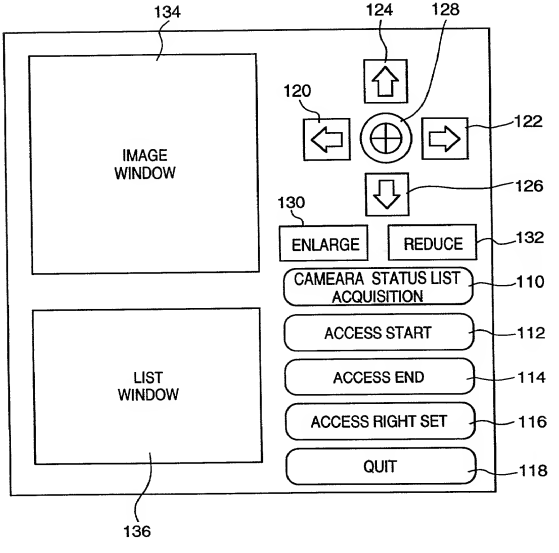

ACCESS REQUEST
S1
80
CAMERA STATUS LIST
S2
DESIGNATED CAMERA NAME REGISTERED?
NO
YES
82
ACCESS PERMISSION LIST
S3
ACCESS PERMITTED?
NO
YES
80
CAMERA STATUS LIST
S4
DESIGNATED CAMERA APPARATUS BEING USED?
YES
NO
S7
INFORM ACCESS FAILURE
S5
REGISTER USER NAME IN RECORD OF DESIGNATED CAMERA NAME ON CAMERA STATUS LIST
S6
INFORM ACCESS PERMISSION
RETURN

F I G. 11

```
typedef struct  change_in {
        char target_name [MAXNAME] ;
        char user_name [MAXNAME] ;
        int  access_mode ;
} change_in ;


func_out * change_access_mode_1 (change_in *, CLIENT * cl) ;
```

F I G. 12


134
124
128
120
122
126
130
IMAGE WINDOW
ENLARGE
REDUCE
132
CAMEARA STATUS LIST ACQUISITION
110
ACCESS START
112
LIST WINDOW
ACCESS END
114
ACCESS RIGHT SET
116
QUIT
118
136

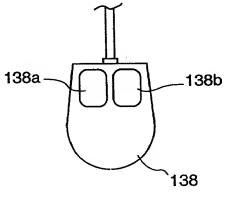

138a
138b
138

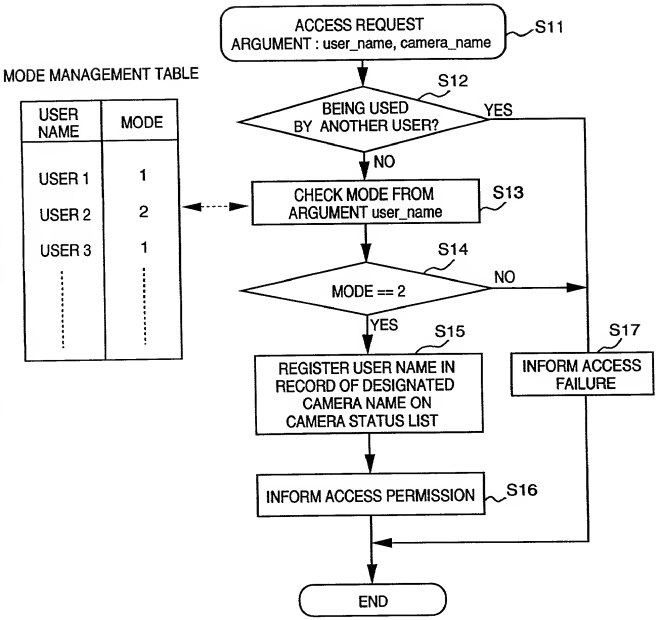
FIG. 13

MODE MANAGEMENT TABLE	
USER NAME	MODE
USER 1	1
USER 2	2
USER 3	1
⋮	⋮

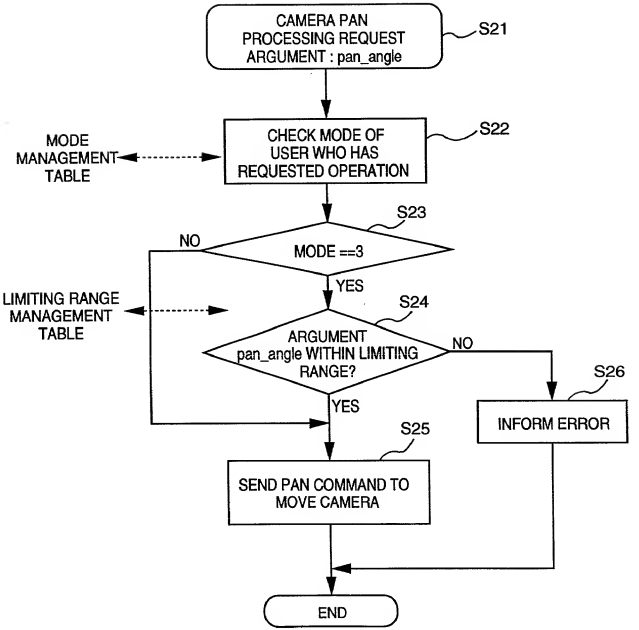
FIG. 14

LIMITING RANGE MANAGEMENT TABLE			
MODE	OPERATION	UPPER LIMIT	LOWER LIMIT
3	PAN	5.0°	(–5.0)°
3	TILT	7.0°	(–7.0)°
3	ZOOM	60 mm	70 mm

FIG. 15


ACCESS REQUEST
ARGUMENT : user_name, camera_name
S11
MODE MANAGEMENT TABLE
USER NAME
MODE
USER 1
1
USER 2
2
USER 3
1
S12
BEING USED BY ANOTHER USER?
YES
NO
CHECK MODE FROM ARGUMENT user_name
S13
S14
MODE == 2
NO
YES
S15
REGISTER USER NAME IN RECORD OF DESIGNATED CAMERA NAME ON CAMERA STATUS LIST
S17
INFORM ACCESS FAILURE
INFORM ACCESS PERMISSION
S16
END

F I G. 16


CAMERA PAN PROCESSING REQUEST ARGUMENT : pan_angle
S21
MODE MANAGEMENT TABLE
CHECK MODE OF USER WHO HAS REQUESTED OPERATION
S22
S23
NO
MODE ==3
YES
LIMITING RANGE MANAGEMENT TABLE
S24
ARGUMENT pan_angle WITHIN LIMITING RANGE?
NO
S26
INFORM ERROR
YES
S25
SEND PAN COMMAND TO MOVE CAMERA
END

F I G. 17

```
typedef struct limitation {
        char camera_name [MAXNAME] ;
        char user_name [MAXNAME] ;
        int limit_mode ;
        double tilte_plus_angle ;
        double tilte_minus_angle ;
        double pan_plus_angle ;
        double pan_minus_angle ;
        int min_zoom ;
        int max_zoom ;
} limitation ;

void set_limit_mode_1 (limitation *, CLIENT * cl) ;
```

F I G. 18

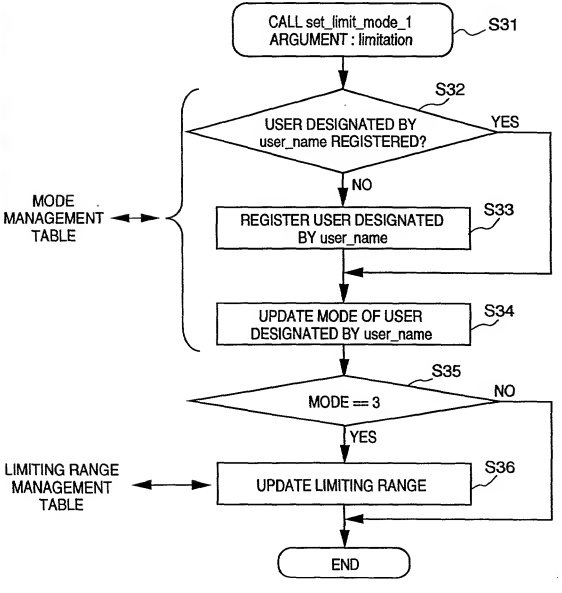
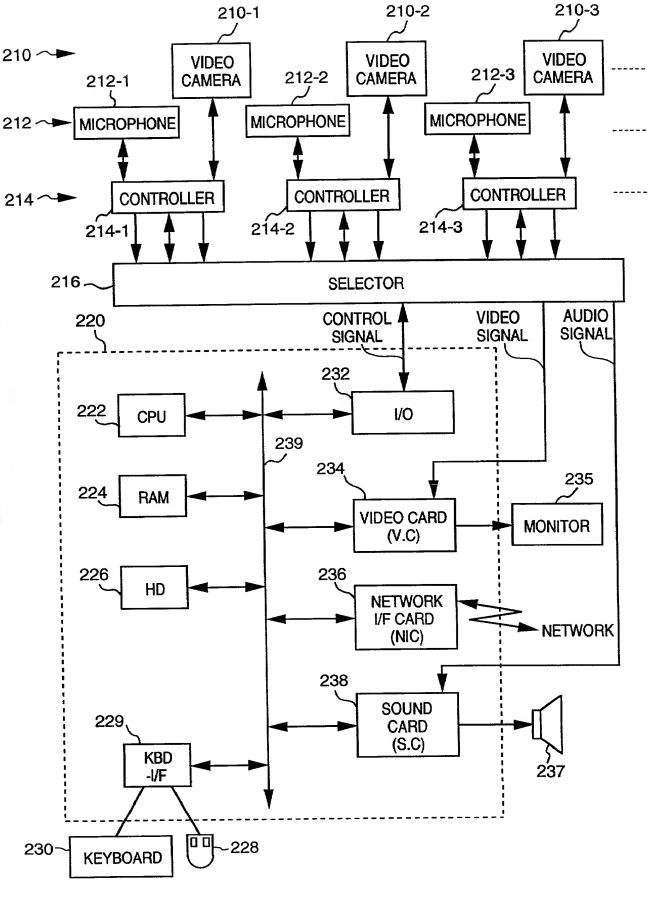


FIG. 19


210
210-1
210-2
210-3
VIDEO CAMERA
VIDEO CAMERA
VIDEO CAMERA
212
212-1
212-2
212-3
MICROPHONE
MICROPHONE
MICROPHONE
214
214-1
214-2
214-3
CONTROLLER
CONTROLLER
CONTROLLER
216
SELECTOR
220
CONTROL SIGNAL
VIDEO SIGNAL
AUDIO SIGNAL
222
CPU
232
I/O
239
224
RAM
234
VIDEO CARD (V.C)
235
MONITOR
226
HD
236
NETWORK I/F CARD (NIC)
NETWORK
238
SOUND CARD (S.C)
229
KBD -I/F
237
230
KEYBOARD
228

F I G. 20

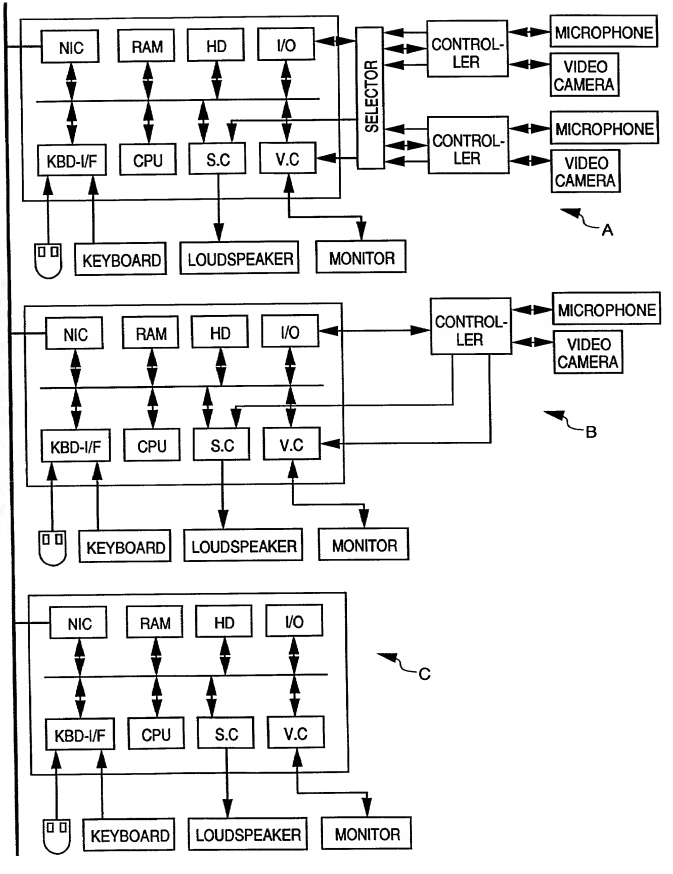
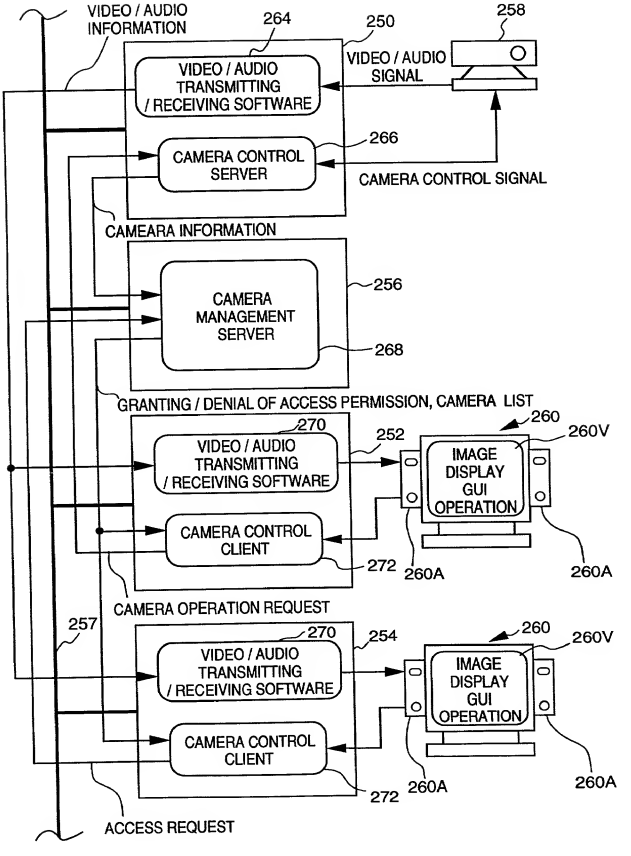

NIC
RAM
HD
I/O
SELECTOR
CONTROL-LER
MICROPHONE
VIDEO CAMERA
CONTROL-LER
MICROPHONE
VIDEO CAMERA
KBD-I/F
CPU
S.C
V.C
A
KEYBOARD
LOUDSPEAKER
MONITOR
NIC
RAM
HD
I/O
CONTROL-LER
MICROPHONE
VIDEO CAMERA
KBD-I/F
CPU
S.C
V.C
B
KEYBOARD
LOUDSPEAKER
MONITOR
NIC
RAM
HD
I/O
C
KBD-I/F
CPU
S.C
V.C
KEYBOARD
LOUDSPEAKER
MONITOR

FIG. 21


VIDEO / AUDIO INFORMATION
264
250
258
VIDEO / AUDIO TRANSMITTING / RECEIVING SOFTWARE
VIDEO / AUDIO SIGNAL
266
CAMERA CONTROL SERVER
CAMERA CONTROL SIGNAL
CAMEARA INFORMATION
256
CAMERA MANAGEMENT SERVER
268
GRANTING / DENIAL OF ACCESS PERMISSION, CAMERA LIST
270
260
260V
252
VIDEO / AUDIO TRANSMITTING / RECEIVING SOFTWARE
IMAGE DISPLAY GUI OPERATION
CAMERA CONTROL CLIENT
272
260A
260A
CAMERA OPERATION REQUEST
257
270
260
260V
254
VIDEO / AUDIO TRANSMITTING / RECEIVING SOFTWARE
IMAGE DISPLAY GUI OPERATION
CAMERA CONTROL CLIENT
272
260A
260A
ACCESS REQUEST

F I G. 22

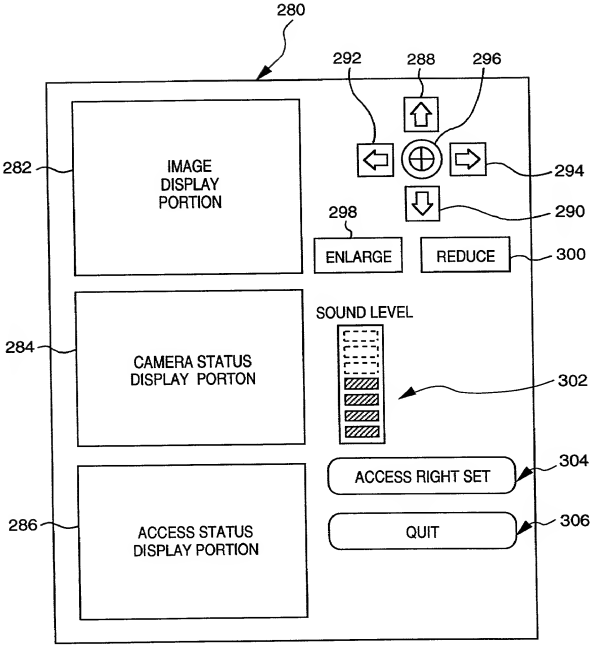

280
292
288
296
282
IMAGE DISPLAY PORTION
294
298
290
ENLARGE
REDUCE
300
SOUND LEVEL
284
CAMERA STATUS DISPLAY PORTON
302
304
ACCESS RIGHT SET
286
ACCESS STATUS DISPLAY PORTION
QUIT
306

FIG. 23

CAMERA NAME	HOST NAME	PAN,TILT, AND ZOOM	OWNER	USE STATE	REMARKS
CAMERA 1	HOST 1	(50, 10, 30)	USER 1	USER 3	----------
CAMERA 2	HOST 1	(20, 25, 0)	USER 1	UNUSED	----------
CAMERA 3	HOST 2	(-10, -5, 0)	USER 2	UNUSED	----------
CAMERA 4	HOST 3	(30, 0, 15)	USER 4	USER 1	----------
CAMERA 5	HOST 3	(-15, 15, 50)	USER 3	UNUSED	----------
⋮	⋮	⋮	⋮	⋮	⋮

FIG. 24

USER NAME	VOICE RECEPTION	IMAGE RECEPTION	CAMERA OPERATION
USER 1	PERMITTED	PERMITTED	PERMITTED
USER 2	PERMITTED	PERMITTED	PARTIALLY PERMITTED
USER 3	PERMITTED	PERMITTED	PERMITTED
USER 4	PERMITTED	PERMITTED	INHIBITED
USER 5	INHIBITED	PERMITTED	INHIBITED
USER 6	PERMITTED	PERMITTED	INHIBITED
USER 7	INHIBITED	PERMITTED	INHIBITED
USER 8	PERMITTED	PERMITTED	PERMITTED
⋮	⋮	⋮	⋮
USER n	INHIBITED	INHIBITED	INHIBITED

F I G. 25A

USER GROUP NAME	GROUP MEMBERS
GROUP 1	USER 1 USER 3 USER 8
GROUP 2	USER 2
GROUP 3	USER 4 USER 6
GROUP 4	USER 5 USER 7
⋮	⋮
GROUP m	USER n

F I G. 25B

USER GROUP NAME	VOICE RECEPTION	IMAGE RECEPTION	CAMERA OPERATION
GROUP 1	PERMITTED	PERMITTED	PERMITTED
GROUP 2	PERMITTED	PERMITTED	PARTIALLY PERMITTED
GROUP 3	PERMITTED	PERMITTED	INHIBITED
GROUP 4	INHIBITED	PERMITTED	INHIBITED
⋮	⋮	⋮	⋮
GROUP m	INHIBITED	INHIBITED	INHIBITED

F I G. 26A

USER GROUP NAME	VOICE RECEPTION	IMAGE RECEPTION	CAMERA OPERATION
GROUP 1	PERMITTED	PERMITTED	PERMITTED
GROUP 2	PERMITTED	PERMITTED	PERMITTED
OTHERS	PERMITTED	PERMITTED	INHIBETED

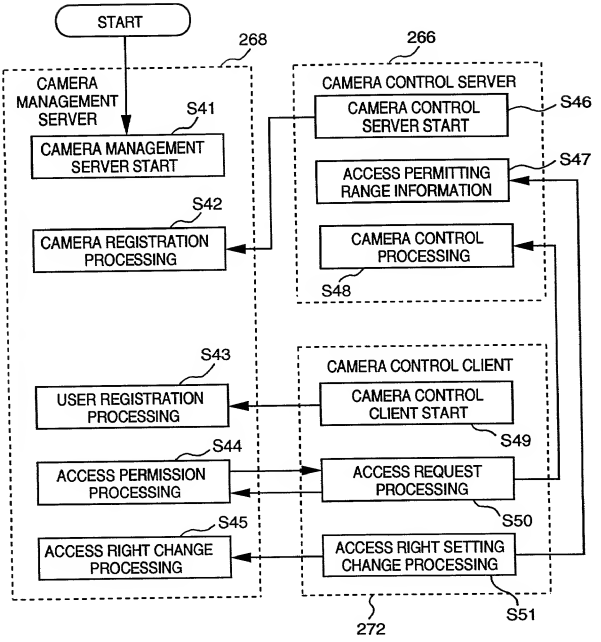
F I G. 26B

USER GROUP NAME	VOICE RECEPTION	IMAGE RECEPTION	CAMERA OPERATION
GROUP 1	PERMITTED	PERMITTED	PERMITTED
GROUP 2	PERMITTED	PERMITTED	INHIBITED
OTHERS	INHIBITED	INHIBITED	INHIBITED

F I G. 26C

USER GROUP NAME	VOICE RECEPTION	IMAGE RECEPTION	CAMERA OPERATION
GROUP 1	INHIBITED	PERMITTED	INHIBITED
GROUP 2	INHIBITED	INHIBITED	INHIBITED
OTHERS	INHIBITED	INHIBITED	INHIBITED

F I G. 27


START
268
CAMERA MANAGEMENT SERVER
S41
CAMERA MANAGEMENT SERVER START
S42
CAMERA REGISTRATION PROCESSING
266
CAMERA CONTROL SERVER
CAMERA CONTROL SERVER START
S46
S47
ACCESS PERMITTING RANGE INFORMATION
CAMERA CONTROL PROCESSING
S48
S43
USER REGISTRATION PROCESSING
CAMERA CONTROL CLIENT
CAMERA CONTROL CLIENT START
S49
S44
ACCESS PERMISSION PROCESSING
ACCESS REQUEST PROCESSING
S50
S45
ACCESS RIGHT CHANGE PROCESSING
ACCESS RIGHT SETTING CHANGE PROCESSING
S51
272

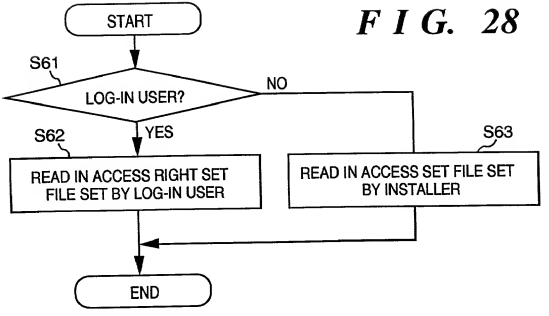

START
S61
LOG-IN USER?
NO
YES
S62
READ IN ACCESS RIGHT SET FILE SET BY LOG-IN USER
S63
READ IN ACCESS SET FILE SET BY INSTALLER
END

FIG. 28

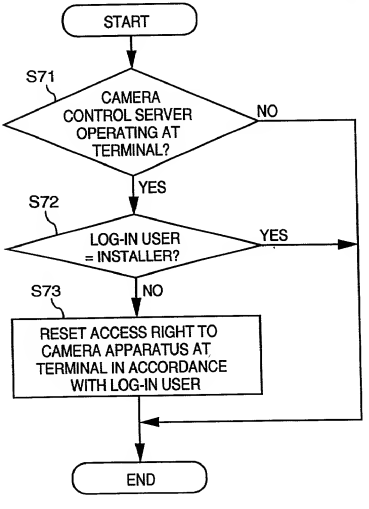
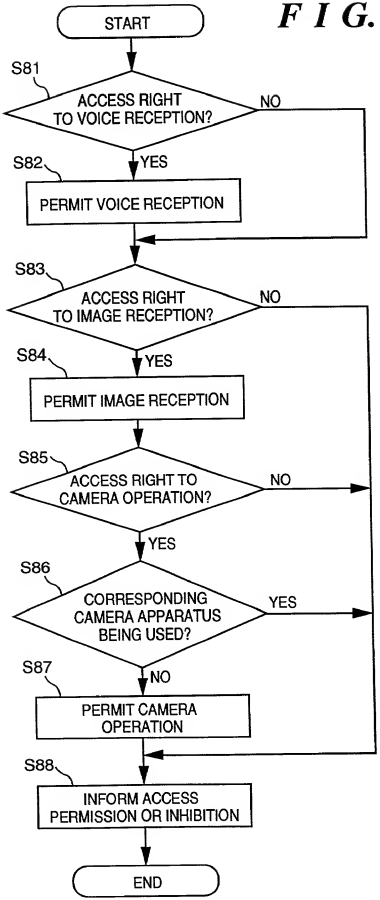
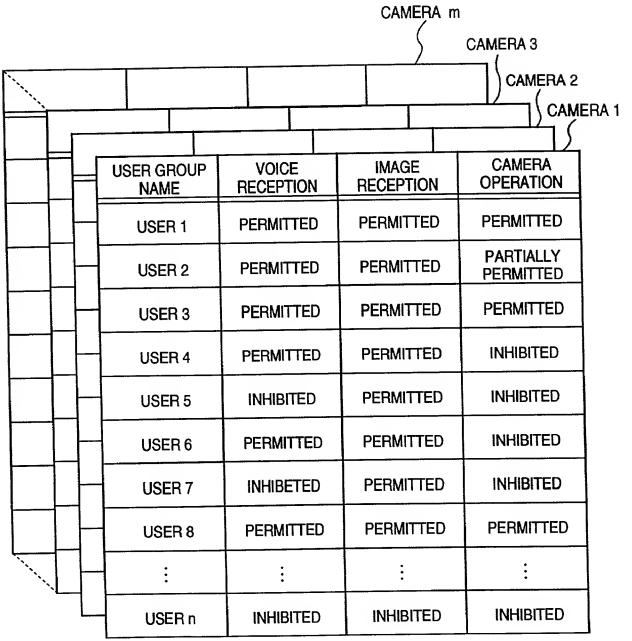

START
S71
CAMERA CONTROL SERVER OPERATING AT TERMINAL?
NO
YES
S72
LOG-IN USER = INSTALLER?
YES
S73
NO
RESET ACCESS RIGHT TO CAMERA APPARATUS AT TERMINAL IN ACCORDANCE WITH LOG-IN USER
END

FIG. 29

FIG. 30

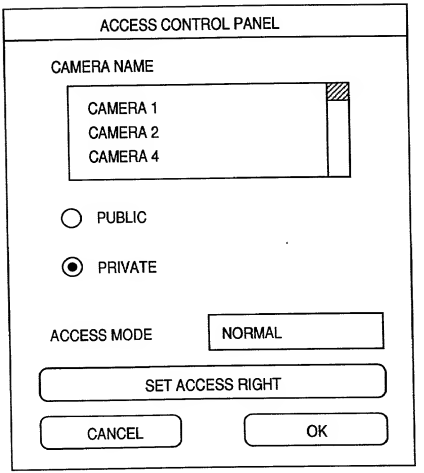

START
S81
ACCESS RIGHT TO VOICE RECEPTION?
NO
YES
S82
PERMIT VOICE RECEPTION
S83
ACCESS RIGHT TO IMAGE RECEPTION?
NO
YES
S84
PERMIT IMAGE RECEPTION
S85
ACCESS RIGHT TO CAMERA OPERATION?
NO
YES
S86
CORRESPONDING CAMERA APPARATUS BEING USED?
YES
NO
S87
PERMIT CAMERA OPERATION
S88
INFORM ACCESS PERMISSION OR INHIBITION
END

F I G. 31

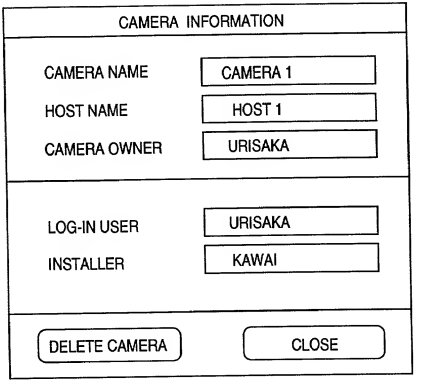


USER GROUP NAME	VOICE RECEPTION	IMAGE RECEPTION	CAMERA OPERATION
USER 1	PERMITTED	PERMITTED	PERMITTED
USER 2	PERMITTED	PERMITTED	PARTIALLY PERMITTED
USER 3	PERMITTED	PERMITTED	PERMITTED
USER 4	PERMITTED	PERMITTED	INHIBITED
USER 5	INHIBITED	PERMITTED	INHIBITED
USER 6	PERMITTED	PERMITTED	INHIBITED
USER 7	INHIBETED	PERMITTED	INHIBITED
USER 8	PERMITTED	PERMITTED	PERMITTED
⋮	⋮	⋮	⋮
USER n	INHIBITED	INHIBITED	INHIBITED

F I G. 32


ACCESS CONTROL PANEL
CAMERA NAME
CAMERA 1
CAMERA 2
CAMERA 4
PUBLIC
PRIVATE
ACCESS MODE
NORMAL
SET ACCESS RIGHT
CANCEL
OK

F I G. 33


CAMERA INFORMATION
CAMERA NAME
CAMERA 1
HOST NAME
HOST 1
CAMERA OWNER
URISAKA
LOG-IN USER
URISAKA
INSTALLER
KAWAI
DELETE CAMERA
CLOSE

F I G. 34

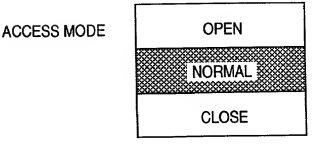

ACCESS MODE
OPEN
NORMAL
CLOSE

FIG. 35

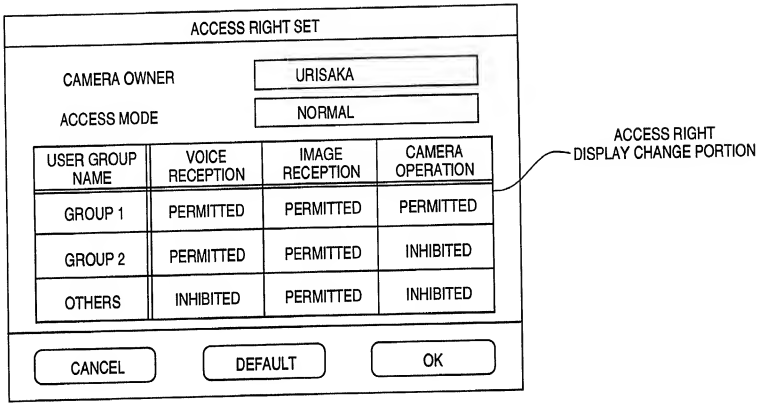


FIG. 36

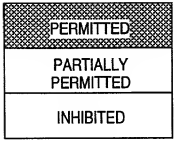
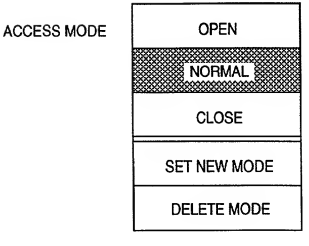
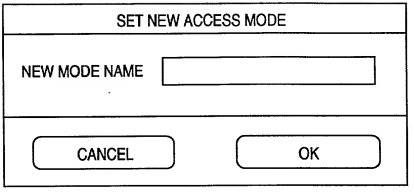

PERMITTED
PARTIALLY PERMITTED
INHIBITED

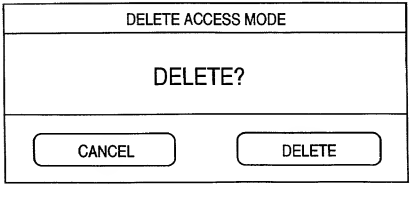
FIG. 37


ACCESS MODE
OPEN
NORMAL
CLOSE
SET NEW MODE
DELETE MODE

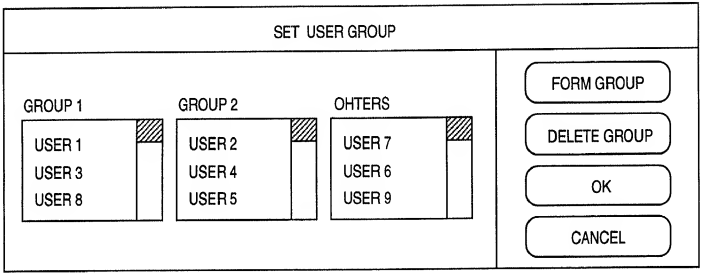
F I G. 38


SET NEW ACCESS MODE
NEW MODE NAME
CANCEL
OK

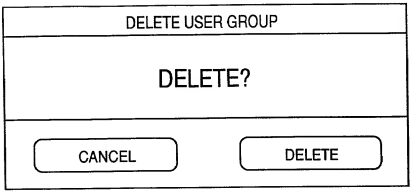
F I G. 39


DELETE ACCESS MODE
DELETE?
CANCEL
DELETE

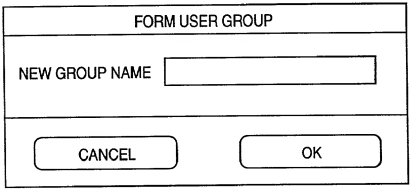
F I G. 40



F I G. 41



F I G. 42



F I G. 43

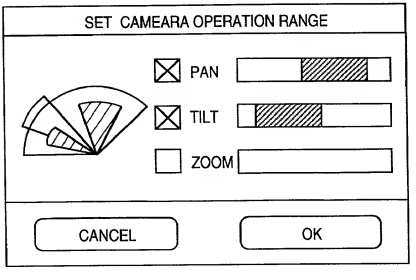


FIG. 44

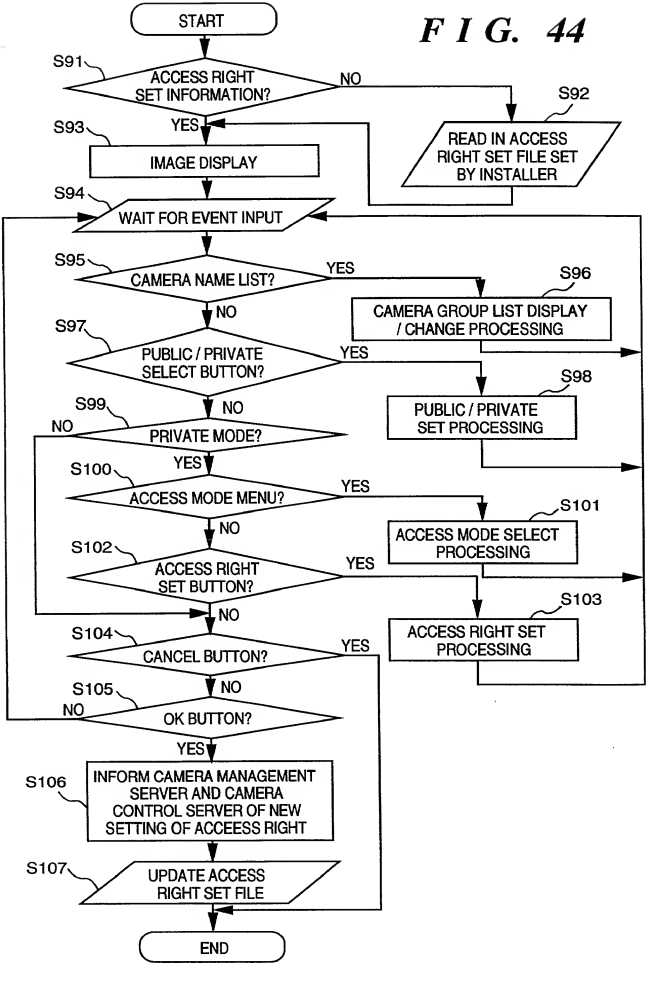
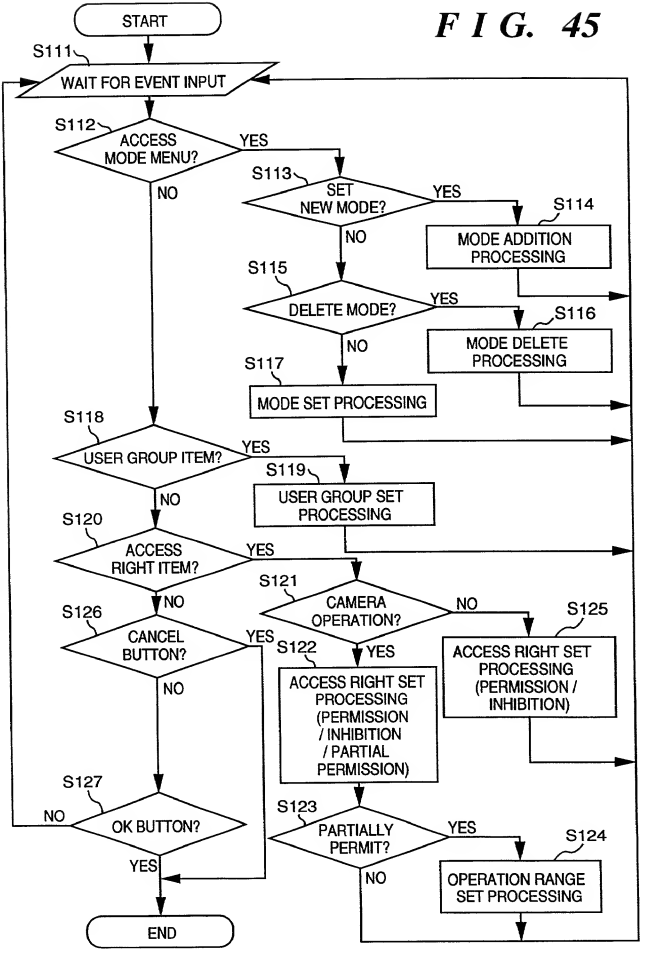

START
S91
ACCESS RIGHT SET INFORMATION?
NO
S92
READ IN ACCESS RIGHT SET FILE SET BY INSTALLER
YES
S93
IMAGE DISPLAY
S94
WAIT FOR EVENT INPUT
S95
CAMERA NAME LIST?
YES
S96
CAMERA GROUP LIST DISPLAY / CHANGE PROCESSING
NO
S97
PUBLIC / PRIVATE SELECT BUTTON?
YES
S98
PUBLIC / PRIVATE SET PROCESSING
NO
S99
NO
PRIVATE MODE?
YES
S100
ACCESS MODE MENU?
YES
S101
ACCESS MODE SELECT PROCESSING
NO
S102
ACCESS RIGHT SET BUTTON?
YES
S103
ACCESS RIGHT SET PROCESSING
NO
S104
CANCEL BUTTON?
YES
NO
S105
NO
OK BUTTON?
YES
S106
INFORM CAMERA MANAGEMENT SERVER AND CAMERA CONTROL SERVER OF NEW SETTING OF ACCEESS RIGHT
S107
UPDATE ACCESS RIGHT SET FILE
END

FIG. 45


START
S111
WAIT FOR EVENT INPUT
S112
ACCESS MODE MENU?
YES
NO
S113
SET NEW MODE?
YES
NO
S114
MODE ADDITION PROCESSING
S115
DELETE MODE?
YES
NO
S116
MODE DELETE PROCESSING
S117
MODE SET PROCESSING
S118
USER GROUP ITEM?
YES
NO
S119
USER GROUP SET PROCESSING
S120
ACCESS RIGHT ITEM?
YES
NO
S121
CAMERA OPERATION?
NO
YES
S125
ACCESS RIGHT SET PROCESSING (PERMISSION / INHIBITION)
S126
CANCEL BUTTON?
YES
NO
S122
ACCESS RIGHT SET PROCESSING (PERMISSION / INHIBITION / PARTIAL PERMISSION)
S127
NO
OK BUTTON?
YES
S123
PARTIALLY PERMIT?
YES
NO
S124
OPERATION RANGE SET PROCESSING
END